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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/811,389	03/20/2001	Kozo Mano	0052/042001	8768

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EXAMINER

PHAM, HAI CHI

ART UNIT	PAPER NUMBER
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2861

DATE MAILED: 01/14/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/811,389

Applicant(s)

KOZO MANO

Examiner

Hai C Pham

Art Unit

2861

NW

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 23 October 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 11-21 and 23-26 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 23 and 25 is/are allowed.
- 6) ☒ Claim(s) 1-12, 14-17, 19-21, 24 and 26 is/are rejected.
- 7) ☒ Claim(s) 13 and 18 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 13. 6) ☐ Other: _____

DETAILED ACTION

Claim Objections

1. Claims 11, 14, 18 and 23-25 are objected to because of the following informalities:

Claim 11:

- Line 22, “a surface of a photographic paper” should read --a surface of the photographic paper--, since the claimed element “photographic paper” has been recited earlier within the claim.

Claim 14:

- Line 2, “optical paths adjusting system” should read --optical path adjusting system--, so as to keep the consistency of the claimed terminology.

Claim 18:

- Line 2, “optical paths adjusting system” should read --optical path adjusting system--.

Claim 23:

- Line 30, “optical path system” should read --optical path adjusting system--.

Claim 24:

- Line 14, “a surface of a photographic paper” should read --a surface of the photographic paper--.

Claim 25:

- Line 14, “a surface of a photographic paper” should read --a surface of the photographic paper--.

Appropriate correction is required.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 11-12, 15, 19-21, 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Morita et al. (U.S. 6,144,441) in view of Mochizuki et al. (U.S. 4,841,137).

With regard to claims 11, 21, 26, Morita et al. discloses an image recording apparatus comprising a laser beam scanner (exposing unit 34) including a first laser light source (100R) for oscillating and emitting a red laser beam (Lr), a second laser light source (100G) for oscillating and emitting a green laser beam (Lg), a third laser light source (100B) for oscillating and emitting a blue laser beam (Lb), a conveyor (scanning transport means 54) for linearly conveying a photographic paper to a predetermined scanning plane of the laser beam scanner at a predetermined constant speed (Figs. 5 and 6), an optical scanning system (polygon mirror 104 and fθ lens 106 and mirror 108) for scanning the laser beams on the predetermined scanning plane coinciding with a surface of the photographic paper when being conveyed thereto, an optical path adjusting system (not shown optical path changing mirrors) for adjusting optical paths of the optical scanning system, which includes a position sensor (col. 15, lines 23-27), and a

developer (developing machine or processor 66) for developing a latent image exposed on the photographic paper by the laser beam scanner (col. 15, lines 14-61).

Morita et al. further teaches (referring to claim 21) all the positions of the laser beams can be adjusted to overlap at a certain point on the predetermined scanning plane (position X of the same scanning line) (col. 15, lines 32-40 and 52-61).

Morita et al. further teaches (referring to claim 26) the exposure unit (34) including a magazine (84, Fig. 5), which contains a roll of photographic paper (A), a cutter (28a) for cutting the photographic paper into a predetermined size of a photographic paper sheet (col. 14, lines 39-51), and a dryer (not shown) for drying the photographic paper (col. 13, lines 9-18).

However, Morita et al. does not explicitly show the three adjuster and the sensor being disposed at a plane optically conjugated with the plane corresponding to the photographic paper (claims 11, 21, 26), the beam splitter (claim 12), the actuator for adjusting a reflection angle of the laser beam (claim 17), the adjusters being positioned between the laser sources and the polygon mirror (claim 19).

Regardless, Mochizuki et al. discloses a multi-beam scanning apparatus including a respective optical path adjusting device (movable reflectors 5 and 6) for adjusting the optical path of each of the laser beams (1 and 2) based on the detection of the laser beams by the position sensor (3 and 4), disposed at an equal distance to the drum (18) (col. 1, lines 32-34), the apparatus also including a polygon mirror (16) for scanning the laser beams on the surface of the photosensitive drum. Takahashi et al. further teaches a beam splitter (15) for directing the laser beams (1 and 2) toward the position sensors for adjustment, respective actuators (7 and 8) for rotating the movable reflectors (7 and 8)

respectively based on the signals detected by the sensors, and the movable reflectors being positioned between the laser sources (11 and 12) and the polygon mirror (16).

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to modify the device of Morita et al. with the aforementioned teaching of Mochizuki et al. for the purpose of correcting the positions of the laser beams on the scanned plane corresponding to the surface of the photographic paper.

With regard to claim 20, Morita et al. teaches the laser light sources respectively emit laser beams having the wavelengths corresponding to three primary colors (R, G, B).

4. Claims 14, 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Morita et al. in view of Mochizuki et al., as applied to claim 11 above, and further in view of Uemura et al. (U.S. 5,436,645).

Morita et al. in view of Mochizuki et al. discloses all the basic limitations of the claimed invention except for the monitor display.

Regardless, Uemura et al. discloses an inspection and adjustment method for a laser scanning optical system, which includes a display monitor for observing the detected laser light beam by a position sensor unit.

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to incorporate a monitor display as taught by Uemura et al. in the modified device of Morita et al. for the purpose of constantly monitoring the positions of the detected laser beams.

5. Claims 15-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Morita et al. in view of Mochizuki et al., as applied to claim 11 above, and further in view of Winsor (U.S. 5,379,059).

Morita et al. in view of Mochizuki et al. discloses all the basic limitations of the claimed invention except for the mirror being manually rotatable around an axis.

Winsor discloses an adjustment mechanism used in a laser printer, which includes laser beam sources for emitting red, green and blue laser beams, corresponding optical path adjusting mirrors (14, 30, 42) for adjusting the optical of the respective laser beams, the azimuth and the elevation angle of each of the mirrors being independently and manually adjusted (via screws) for correcting the final position of each of the laser beams (Figs. 2-6).

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to incorporate the optical path adjusting system as taught by Winsor in the modified device of Morita et al. for the purpose of providing fine adjustment of the mirrors.

Allowable Subject Matter

6. Claims 23 and 25 are allowed.

7. Claims 13 and 18 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

8. The following is an examiner's statement of reasons for allowance:

The primary reason for the indication of the allowability of claim 23 is the inclusion of the limitation "said monitor display is detachable from the optical path [adjusting] system", in the combination as currently claimed.

The primary reason for the indication of the allowability of claim 25 is the inclusion of the limitation "whereby all the positions of the laser beams can be adjusted to overlap at a certain point on the predetermined scanning plane [by using the respective adjusters for adjusting the optical path of the respective laser beams]", in the combination as currently claimed.

The primary reason for the indication of the allowability of claim 13 is the inclusion of the limitation "the total reflection mirror ... withdrawal while the optical paths are adjusted", in the combination as currently claimed.

The primary reason for the indication of the allowability of claim 18 is the inclusion of the limitation "controlling the actuator for coinciding the positions of the laser beams by using the calculated quantity of the displacement", in the combination as currently claimed.

The combined limitations in each of the above claims are not found taught or fairly suggested by the prior arts made of record, considered alone or in combination.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Response to Arguments

9. Applicant's arguments filed 10/23/03 have been fully considered but they are not persuasive.

Applicant argues that "it is important that the scanning lines of the laser beams overlap on the photographic paper sheet 1", and thus "the adjustment of the optical paths of the laser beams is executed so that the red laser beam and the blue laser beams are to be overlapped on the green laser beam" (emphasis added). The examiner agrees with the Applicant on that statement. However, the above critical feature of the invention is not explicitly claimed except for claims 18 and 25 (see allowable subject matters in paragraph 8 above). Although the following claimed element "an optical scanning system for scanning the laser beams on the predetermined scanning plane coinciding with a surface of a photographic paper" is included in each of the remaining claims, it does not mean that all the laser beams should be coincided or overlapped on the surface of the photographic paper. What it means is the predetermined scanning plane being the intended surface of the photographic paper, and that all the laser beams are focused on that surface of the photographic paper, but are not necessary overlapped with each other to form a composite scanning line. Moreover, the inclusion of the following limitation "whereby all the positions of the laser beams can be adjusted to overlap at a certain point on the predetermined scanning plane" in claim 25 further attests the true meaning assigned to the terminology "coinciding". Based on this interpretation, the teachings of both Morita et al. and Takahashi et al. meet the claimed limitation.

Art Unit: 2861

Contact information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hai C Pham whose telephone number is (703) 308-1281. The examiner can normally be reached on T-F (8:30-5:30).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephen D. Meier can be reached on (703) 308-4896. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 308-7722, (703) 308-7724, (703) 308-7382, (703) 305-3431, (703) 305-3432.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.



HAI PHAM
PRIMARY EXAMINER

January 9, 2004